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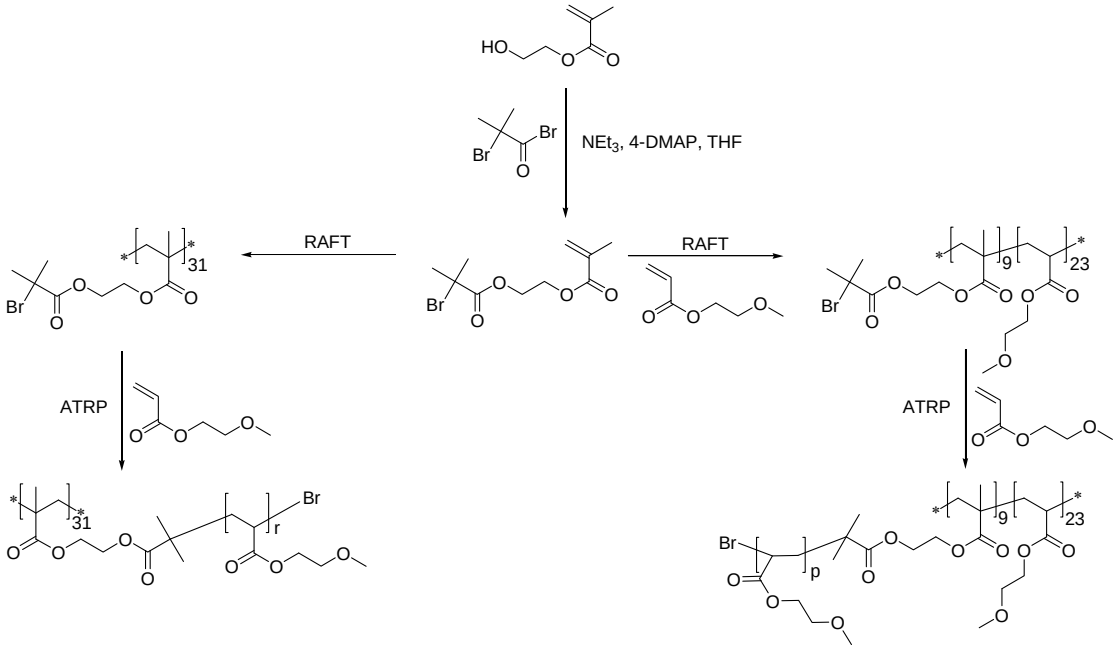
Despite the simple structure, poly(2-methoxyethyl acrylate) (PMEA) shows excellent blood compatibility [1]. Both the freezing-bound water (intermediate water: preventing the biocomponents from directly contacting the polymer surface) and non-freezing water on the polymer surface play important roles for this [2]. An artificial lung (oxygenator), already in use, is coated with high MW PMEA prepared by radical polymerization with AIBN [2]. To broaden the possibilities for designing biomedical devices [3] and inspired from these findings we first prepared homo polymers of MEA and their block copolymers with MMA [4] utilizing ATRP. Here we present other block, graft and random copolymers of MEA intended for biomedical applications. These macromolecular architectures have been constructed by employing controlled radical polymerization methods such as RAFT and ATRP.



Scheme 1 Synthetic strategies for the design of novel graft and random copolymers of MEA

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